

AMENDMENTS TO THE CLAIMS:

1.(currently amended): A thermal diffuser comprising:

a plate-like structure having a wall on its fringe, and being thermally conductive and attached to a case of an electronic component by means of welding or bonding with the wall, the electronic component being subjected to heat exchange with an exterior; and

a plurality of protrusions being arranged with spacing on one or both of said wall and said plate-like structure, said protrusions being spaced from each other to form the spacing among said protrusions forming a channel in a region which is surrounded with said wall, said case, and said plate-like structure and in which a heat medium is confined, the channel being thermally coupled with said case and consisting of web-like paths through which the heat medium recirculates.

2.(currently amended): A thermal diffuser comprising:

a housing being thermally conductive and having an outer wall capable of being thermally coupled with a case of an electronic component which is subjected to heat exchange with an exterior; and

a plurality of protrusions being arranged with spacing on an inner wall of said housing in which a heat medium is confined, the spacing among said protrusions being spaced from each other to form ~~forming~~ a channel being thermally coupled with said case and consisting of web-like paths through which the heat medium recirculates.

3.(currently amended): A thermal diffuser comprising:

a frame being thermally conductive and integrated with a case of an electronic component which is subjected to heat exchange with an exterior; and

a plurality of protrusions being arranged with spacing on an inner wall of said frame in which a heat medium is confined, said protrusions being spaced from each other to form ~~the spacing among said protrusions forming~~ a channel being thermally coupled with said case and consisting of web-like paths through which the heat medium recirculates.

4.(previously amended): The thermal diffuser according to claim 1, further comprising:

a heat medium injection path formed in said wall of said plate-like structure and used for injection of the heat medium into the channel from the exterior.

5.(previously amended): The thermal diffuser according to claim 2, further comprising:

a heat medium injection path formed in said wall of said plate-like structure and used for injection of the heat medium into the channel from the exterior.

6.(previously amended): The thermal diffuser according to claim 3, further comprising:

a heat medium injection path formed in said wall of said plate-like structure and used for injection of the heat medium into the channel from the exterior.

7.(currently amended): The thermal diffuser according to claim 1, wherein:

said plurality of protrusions being closely arranged in a region, the region being near a device or a circuit which is provided in the electronic component and is ~~subject~~ subjected to the heat exchange.

8. (previously amended): The thermal diffuser according to claim 2, wherein:

said plurality of protrusions being closely arranged in a region, the region being near a device or a circuit which is provided in the electronic component and is subjected to the heat exchange.

9.(currently amended): The thermal diffuser according to claim 3, wherein:

said plurality of protrusions being closely arranged in a region, the region being near a ~~device~~ device or a circuit which is provided in the electronic component and is subjected to the heat exchange.

10.(previously amended): The thermal diffuser according to claim 1, wherein:

said plurality of protrusions being arranged with uniform density in a region, the region being distant from a device or a circuit which is provided in the electronic component and is subjected to the heat exchange.

11.(previously amended): The thermal diffuser according to claim 2, wherein:

said plurality of protrusions being arranged with uniform density in a region, the region being distant from a device or a circuit which is provided in the electronic component and is subjected to the heat exchange.

12.(previously amended): The thermal diffuser according to claim 3, wherein:

said plurality of protrusions being arranged with uniform density in a region, the region being distant from a device or a circuit which is provided in the electronic component and is subjected to the heat exchange.

13.(currently amended): The thermal diffuser according to claim 1, wherein:

~~top part(s) of all or~~ at least part of said plurality of protrusions ~~has/have~~ a shape and a size large enough so that ~~to have said channel pass therethrough~~ passes also through top parts of said protrusions.

14.(currently amended): The thermal diffuser according to claim 2, wherein:

~~top part(s) of all or~~ at least part of said plurality of protrusions ~~has/have~~ a shape and a size large enough so that ~~to have said channel pass therethrough~~ passes also through top parts of said protrusions.

15.(currently amended): The thermal diffuser according to claim 3, wherein:

~~top part(s) of all or a~~ at least part of said plurality of protrusions ~~has/have~~ a shape and a size large enough so that ~~to have~~ said channel ~~pass therethrough~~ passes also through top parts of said protrusions.

16.(currently amended): The thermal diffuser according to claim 1, wherein:

~~all or~~ at least part of said plurality of protrusions ~~has/have~~ a ~~partly~~ partially contracted pillar or wedge shape.

17.(currently amended): The thermal diffuser according to claim 2, wherein:

~~all or~~ part of said plurality of protrusions ~~has/have~~ a ~~partly~~ partially contracted pillar or wedge shape.

18.(currently amended): The thermal diffuser according to claim 3, wherein:

~~all or a~~ at least part of said plurality of protrusions ~~has/have~~ a ~~partly~~ partially contracted pillar or wedge shape.

19.(previously amended): The thermal diffuser according to claim 1, wherein:

said plurality of protrusions and/or said wall have a material, a shape, and a size such that recirculation of the heat medium is promoted by capillary attraction in the channel.

20.(previously amended): The thermal diffuser according to claim 2, wherein:

said plurality of protrusions and/or said inner wall have a material, a shape, and a size such that recirculation of the heat medium is promoted by capillary attraction in the channel.

21.(previously amended): The thermal diffuser according to claim 3, wherein:

said plurality of protrusions and/or said inner wall have a material, a shape, and a size such that recirculation of the heat medium is promoted by capillary attraction in the channel.

22.(previously amended): The thermal diffuser according to claim 1, further comprising:

a medium inserted in all or part of sections of the channel, for promoting recirculation of the heat medium by capillary attraction in the channel.

23.(previously amended): The thermal diffuser according to claim 2, further comprising:

a medium inserted in all or part of sections of the channel, for promoting recirculation of the heat medium by capillary attraction in the channel.

24.(previously amended): The thermal diffuser according to claim 3, further comprising:

a medium inserted in all or part of sections of the channel, for promoting recirculation of the heat medium by capillary attraction in the channel.

25.(previously amended): The thermal diffuser according to claim 1, wherein:

all or part of said plurality of protrusions has/have one of a hole and a member, the hole being used for joining and/or coupling the thermal diffuser and said case, the member being used for fastening the thermal diffuser in order to maintain thermal coupling with said case.

26.(previously amended): The thermal diffuser according to claim 2, wherein:

all or part of said plurality of protrusions has/have one of a hole and a member, the hole being used for joining and/or coupling the thermal diffuser and said case, the member being used for fastening the thermal diffuser in order to maintain thermal coupling with said case.

27.(previously amended): The thermal diffuser according to claim 3, wherein:

all or part of said plurality of protrusions has/have one of a hole and a member, the hold being used for joining and/or coupling the thermal diffuser and said case, the member being used for fastening the thermal diffuser in order to maintain thermal coupling with said case.

28.(previously amended): The thermal diffuser according to claim 1, further comprising:

one of a member used for fastening the thermal diffuser in order to maintain thermal coupling with said case, and member(s) integrated with all or a part of said plurality of protrusions individually and used for joining and/or coupling the thermal diffuser and said case.

29.(previously amended): The thermal diffuser according to claim 2, further comprising:

one of a member used for fastening the thermal diffuser in order to maintain thermal coupling with said case, and member(s) integrated with all or part of said plurality of protrusions individually and used for joining and/or coupling the thermal diffuser and said case.

30.(previously amended): The thermal diffuser according to claim 3, further comprising:

one of a member used for fastening the thermal diffuser in order to maintain thermal coupling with said case, and member(s) integrated with all or part of said plurality of protrusions individually and used for joining and/or coupling the thermal diffuser and said case.

31.(currently amended): The thermal diffuser according to claim 1, wherein:



a part of said channel which is most closely thermally coupled with the electronic component is configured to permit a total amount of the heat medium is to be set to such an amount that the heat medium steadily recirculates in a said part of the channel, ~~the part being most closely thermally coupled with the electronic component.~~

32.(currently amended): The thermal diffuser according to claim 2, wherein:

a part of said channel which is most closely thermally coupled with the electronic component is configured to permit a total amount of the heat medium is to be set to such an amount that the heat medium steadily recirculates in a said part of the channel, ~~the part being most closely thermally coupled with the electronic component.~~

33.(currently amended): The thermal diffuser according to claim 3, wherein:

a part of said channel which is most closely thermally configured to permit a total amount of the heat medium is to be set to such an amount that the heat medium steadily recirculates in a said part of the channel, ~~the part being most closely thermally coupled with the electronic component.~~

34.(previously amended): The thermal diffuser according to claim 1, wherein:

said plate-like structure has a shape and a material such that the said plate-like structure has a desired degree of thermal coupling with the exterior or a specific member.

35.(previously amended): The thermal diffuser according to claim 2, wherein:

said outer wall has a shape and a material such that the said plate-like structure has a desired degree of thermal coupling with the exterior or a specific member.

36.(previously amended): The thermal diffuser according to claim 3, wherein:

the outer wall of said frame has a shape and a material such that the said plate-like structure has a desired degree of thermal coupling with the exterior or a specific member.

37.(currently amended): A radiator comprising:

a thermal diffuser comprising a plate-like structure having a wall on its fringe, and being thermally conductive and attached to a case of an electronic component by means of welding or bonding with the wall, the electronic component being ~~subject~~ subjected to heat exchange with an exterior; and a plurality of protrusions being arranged with spacing on one or both of said wall and said plate-like structure, said protrusions being spaced from each other to form the spacing among said protrusions forming a channel in a region which is surrounded with said wall, said case, and said plate-like structure and in which a heat medium is confined, the channel being thermally coupled with said case and consisting of web-like paths through which the heat medium recirculates; and

a radiating member thermally coupled with an outer wall of said thermal diffuser, for radiating heat to an exterior, the heat being transferred via said thermal diffuser.

38.(currently amended): A radiator comprising:

a thermal diffuser comprising a housing being thermally conductive and having an outer wall capable of being thermally coupled with a case of an electronic component which is subjected to heat exchange with an exterior; and a plurality of protrusions being arranged with spacing on an inner wall of said housing in which a ~~heat~~ heat medium is confined, said protrusions being spaced from each other to form the spacing among said protrusions forming a channel being thermally coupled with said case and consisting of web-like paths through which the heat medium recirculates; and

a radiator member thermally coupled with an outer wall of said thermal diffuser, for radiating heat to the exterior, the heat being transferred via said thermal diffuser.

39.(currently amended): A radiator comprising:

a thermal diffuser comprising a frame being thermally conductive and integrated with a case of an electronic component which is subjected to heat exchange with an exterior; and a plurality of protrusions being arranged with spacing on an inner wall of said frame in which a heat medium is confined, said protrusions being spaced from each other to form the spacing among said protrusions forming a channel being

thermally coupled with said case and consisting of web-like paths through which the heat medium recirculates; and

a radiating member thermally coupled with an outer wall of said thermal diffuser, for radiating heat to the exterior, the heat being transferred via said thermal diffuser.

40.(currently amended): A radiator comprising:

a thermal diffuser comprising a plate-like structure having a wall on its fringe, and being thermally conductive and attached to case of an electronic component by means of welding or bonding with the wall, the electronic component being subjected to heat exchange with an exterior; and a plurality of protrusions being arranged with spacing on one or both of said wall and said plate-like structure, ~~the spacing among said protrusions forming~~ said protrusions being spaced from each other to form a channel in a region which is surrounded with said wall, said case, and said plate-like structure and in which a heat medium is confined, the channel being thermally coupled with said case and consisting of web-like paths through which the heat medium recirculates; and

a radiating member integrally formed on an outer wall of said thermal diffuser, for radiating heat to the exterior, the heat being transferred via said thermal diffuser.

41.(currently amended): A radiator comprising:

a thermal diffuser comprising a housing being thermally conductive and having an outer wall capable of being thermally coupled with a case of an electronic component which is subjected to heat exchange with an exterior; and a plurality of protrusions being arranged with spacing on an inner wall of said housing in which a heat medium is confined, ~~the spacing among said protrusions forming~~ said protrusions being spaced from each other to form a channel being thermally coupled with said case and consisting of web-like paths through which the heat medium recirculates; and

a radiating member integrally formed on an outer wall of said thermal diffuser, for radiating heat to the exterior, the heat being transferred via said thermal diffuser.

42.(currently amended): A radiator comprising:

a thermal diffuser comprising a frame being thermally conductive and integrated with a case of an electronic component which is subjected to heat exchange with an exterior; and a plurality of protrusions being arranged with spacing on an inner wall of said frame in which a heat medium is confined, ~~the spacing among said protrusions forming~~ said protrusions being spaced from each other to form a channel being thermally coupled with said case and consisting of web-like paths through which the heat medium recirculates; and

a radiating member integrally formed on an outer wall of said thermal diffuser, for radiating heat to the exterior, the heat being transferred via said thermal diffuser.